

Japanese Unexamined Patent Publication No. 56(1981)-117275

Publication Date: September 14, 1981

Int. Cl.: G09F 9/35, G02F 1/133, G09G 3/36

Application No.: JP55(1980)-20542

5 Application Date: February 22, 1980

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Title of the Invention:

10 Image Display Apparatus

Claims:

1. An image display device comprising:

15 a plurality of cells, each of which has a storage function and a switching function for determining a switching state based on data stored in the storage function and maintaining the switching state substantially constantly, and which are arranged to correspond to each of pixels so as to store a pixel signal corresponding to an image to be displayed;

an electrode which is provided to correspond to each of the cells;

20 a liquid crystal layer which is held between the electrodes and a transparent electrode in a sealed state;

a power source for controlling the arrangement of molecules of a liquid crystal by applying an electric field to the liquid crystal layer;

a data line for writing the pixel signal in each of the cells; and

25 a selection line for selecting the cell by scanning, wherein the pixel signal is written in the cell, which is selected by the selection line, through

the data line to be stored therein, and wherein the electric field applied to a pair of electrodes which hold the liquid crystal layer from both sides thereof through the cell is maintained at a substantially constant level.

2. An image display device as defined in Claim 1, wherein the cell includes a flip-flop circuit, and wherein the pixel signal is stored by the flip-flop circuit.

3. An image display device as defined in Claim 1, wherein the cell includes an isolation layer for trapping charges and a non-volatile memory transistor having a transistor which is controlled by the charges in the isolation layer, and wherein the pixel signal is stored by the non-volatile memory transistor.

4. An image display device as defined in Claim 1, wherein the cell includes an isolation layer for trapping charges and a condenser of which the capacity changes by the charges in the isolation layer, and wherein the pixel signal is stored by the condenser.

5. An image display device as defined in Claim 1, wherein the cell includes an amorphous semiconductor of which the resistance value changes by phase transition, and wherein the pixel signal is stored using a change in the resistance value of the amorphous semiconductor.

6. An image display device as defined in Claim 1, wherein the cell includes a light sensor for detecting light that passes through the liquid crystal layer and a pair of transistors, and wherein the pixel signal is stored by controlling the pair of transistors by an output signal from the light sensor.

7. An image display device as defined in Claim 1, wherein the cell is made of amorphous silicon or single-crystal silicon.

8. An image display device

8. An image display device comprising:

5 a plurality of cells, each of which has a storage function and a switching function for determining a switching state based on data stored in the storage function and maintaining the switching state substantially constantly, and which are arranged to correspond to each of pixels so as to store a pixel signal corresponding to an image to be displayed;

an electrode which is provided to correspond to each of the cells;

10 a dielectric mirror which is provided so that the electrode of each of the cells is covered;

a liquid crystal layer which is held between the dielectric mirror and a transparent electrode in a sealed state;

a power source for controlling the arrangement of molecules of a liquid crystal by applying an electric field to the liquid crystal layer;

15 a data line for writing the pixel signal in each of the cells; and

a selection line for selecting the cell by scanning, wherein the pixel signal is written in the cell, which is selected by the selection line, through the data line to be stored therein, and wherein the electric field applied through the cell to a pair of electrodes which are provided so as to hold the liquid crystal layer and the dielectric mirror from the both sides thereof is maintained at a substantially constant level.

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